Do stroke units need nursing?

Huijben-Schoenmakers, H.C.M.

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Chapter 8

Summary

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Rehabilitation in older severe disabled, cognitive impaired co morbid stroke patients. The effects of increased therapy time on cognition and functional outcome.

The aim of the present thesis is to examine the time older severe ill stroke patients spend on rehabilitation at specialized rehabilitation units of nursing homes. Subsequently, it was examined if and how this rehabilitation time could be increased. In addition, in this thesis, the question will be answered whether functional outcome is associated to specific cognitive domains. Subsequently, the effect of increased therapy time on cognition and functional outcome is investigated by using the exercise map. Specific attention is paid to the role of the nurse in the rehabilitation process and in the multidisciplinary team.

Chapter 1 introduces the central concepts of the present thesis**,** e.g. physical and cognitive deficits after stroke, rehabilitation wards of nursing homes, older severe disabled stroke patients and the role of the nurse. Furthermore it presents the key objectives of the thesis.

Chapter 2 describes the time older severe disabled stroke patients spend on rehabilitation at the specialized rehabilitation unit of a nursing home. Literature suggests that being inactive for a long time is detrimental for recovery after stroke. The findings of this study show that patients on the rehabilitation unit in a nursing home spent only 103.5 minutes per day (20%) on therapeutic activities. Patients filled up their hours with sitting and waiting, without any interaction with others, for a large part of the day (80%).

In chapter 3, the results of the development and implementation of the exercise map, which is based on four interventions from the evidence based Clinical Nursing Rehabilitation Stroke Guidelines, are reported. The time spent on therapeutic activities increased significantly from 103.5 minutes measured in our first study (chapter 1) to 156.5 minutes in the present study. The patients with higher scores on the Barthel Index, were more active, resulting in a significant positive Barthel Index–therapy time relationship. Nursing care in this nursing home intervention group changed from performing care as usual based on the Dutch Stroke Guideline into a more dominant involvement in the rehabilitation process of the patient and multidisciplinary team. Nurses stimulated, encouraged and helped the patient to do exercises. Indeed she is 24/7 on the ward and she can closely follow the patient during his/her recovery. She informs the multidisciplinary team about the patients' progress. In this way therapists, psychologists, physicians can use this information to adapt their interventions and treatments to the individual needs of the patient. There is strong evidence from reviews that close multidisciplinary cooperation and integrated nursing care improves stroke patients outcome.

The aim of our cross-sectional study reported in **chapter 4** is to ascertain if cognition is associated to functional outcome in this older study population. The study showed that executive functioning, especially set-shifting, and memory are significantly associated with functional outcome. Set-shifting is a necessary condition for cognitive flexibility which appears to be associated with physical activity. Reduced set-shifting may lead to less cognitive flexibility and to diminished functional performance. Furthermore being able to remember events, locations, persons is fundamental to plan, execute and evaluate everyday activities. Poor memory leaves these stroke patients with less mental instruments to perform significant tasks of daily life. All the stroke patients in this study suffered from severe cognitive deficits and functional dependency. It is therefore crucial to assess patient's cognition and functional outcome in the very early phase of recovery in order to implement and execute straight ahead

the best available combination of cognitive and functional interventions. Nurses can, after training, assist therapists and other professionals in collecting cognitive, functional and other illness related data because they are 24/7 available on the ward.

According to literature reviews, cognition and functional ability are strongly related in stroke rehabilitation. This knowledge might help to improve rehabilitation outcomes by combining evidence based functional and cognitive interventions. Most literature includes younger less severe disabled stroke patients with mild cognitive deficits. However evidence in literature is scarce regarding rehabilitation needs for cognitive and functional recovery in older severe disabled, co-morbid and cognitive impaired stroke patients. Therefore a single blind controlled study was designed to study the effect of increased therapy time on cognition and functional outcome in this frail study population in nursing homes. The study protocol is presented in **chapter 5**.

Chapter 6 contains the results of our single blind controlled study. Between January 2011 and November 2016 we have examined if there is a beneficial effect of the intervention, reflected in increased therapy time, on cognition and functional outcome of these severe disabled stroke patients. Contrary to our expectations we did not find any significant improvement on cognition and functional outcome between the intervention and control group. Unfortunately we could not follow our original study protocol program. Patients were, in general, discharged after 5 weeks, instead of the programmed 8 weeks, due to decision making on the ward and legislation. Around the time of discharge they still suffered from cognitive deficits and poor functional outcome. Moreover, in the intervention group, patients received less than 150 minutes therapy per day. Indeed literature showed that a prolonged inpatient rehabilitation program from 6 months or longer improves functional outcome in older stroke patients. Furthermore at home there is no supply chain of stroke care 24/7 available for all patients. Consequently, we suggest

to intensify and lengthen the inpatient rehabilitation program for a much longer period of time, at least up to a 6 month period if necessary.

Chapter 7 summarizes the main findings of this thesis. In addition this chapter discusses methodological considerations related to the used assessment instruments e.g. cognition and Behavioural Mapping, to randomisation and blinding, and to missing values. Moreover practical objectives e.g. rehabilitation of older stroke patients in nursing homes, multidisciplinary team and the role of the nurse are discussed as well. Finally the chapter presents the clinical relevance and recommendations of this thesis. To obtain better functional and cognitive outcomes it is recommended to renew the stroke unit as a skilled unit where the work of the specialised multidisciplinary stroke team leads to a higher quality of rehabilitation for older frail stroke patients. To ensure that nurses can execute their worthwhile rehabilitation role, they should be empowered by the other professionals and boards of the nursing homes. Furthermore as a role model, baccalaureate- educated registered nurses or other well experienced nurses should perform over and over again their contribution to the rehabilitation process even if other professionals do not expect them to act like that. Nurses certainly can improve patients rehabilitation outcomes and indeed there is strong evidence from meta-ethnographic and meta analytical reviews that intensive multidisciplinary cooperation involved with rehabilitation nursing care improves outcomes as well. Furthermore it is recommended that to reach a 24/7 therapeutic climate, it would absolutely be necessary that therapists and psychologists, together with nurses, work during evenings and in the weekend. Finally future studies should further explore how cognition and functional outcome can improve in older severe ill, comorbid and cognitively impaired stroke patients during their rehabilitation process.